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| 09/826,616 | 04/05/2001 | Hugh Anglin | EWG-143 US | 4050 |

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| EXAMINER | |
|---|---|
| THOMPSON, JAMES A | |

| ART UNIT | PAPER NUMBER |
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| 2624 | |

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/826,616 | ANGLIN, HUGH | |
| | Examiner | Art Unit | |
| | James A. Thompson | 2624 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on *10 Feb. 2005, 14 Feb. 2005, 4 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8-10,12,13 and 15-24* is/are rejected.

7)☒ Claim(s) *1-5,8-10,12,13 and 15-24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/14/05,3/4/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. With regards to the request on page 11, lines 10-16 of Applicant's arguments, filed 10 February 2005, to consider the IDS and the references cited therein, Examiner has considered all of the references listed on the IDS dated 14 February 2005 and the IDS dated 04 March 2005. Further, the objection to the IDS listed in item 1 of the previous office action, dated 29 October 2004, has been withdrawn.

2. Applicant's arguments, see page 11, lines 17-20, filed 10 February 2005, with respect to the drawings have been fully considered and are persuasive. The objection to the drawings listed in item 2 of said previous office action has been withdrawn.

3. Applicant's arguments, see page 11, lines 21-23, filed 10 February 2005, with respect to the specification have been fully considered and are persuasive. The objections to the specification listed in item 4 of said previous office action has been withdrawn. However, Examiner notes that the objection to the abstract raised in item 3 of said previous office action has not been addressed.

4. Applicant's arguments, see page 11, lines 25-27, filed 10 February 2005, with respect to the claim objections do not address the objections to the claims listed in items 5 and 6 of said previous office action and fully address the objections to the claims listed in item 7 of said office action. The

objections to the claims listed in items 5-6 of said previous office action that have not been addressed are repeated below. All other objections to the claims that were listed in items 5-7 of said previous office action are withdrawn.

5. Applicant's amendments to the claims, filed 10 February 2005, fully address the rejections to the claims under 35 USC §112, second paragraph listed in items 8-11 of said previous office action. The rejections to the claims under 35 USC §112, second paragraph listed in items 8-11 of said previous office action are therefore withdrawn.

6. Applicant's arguments, see page 11, line 28 to the end of page 13, filed 10 February 2005, have been fully considered but they are not persuasive. Applicant's arguments are directed to the current amendments to the claims, and not to the claims as filed prior to said previous office action. The rejections to the claims which are necessitated by the present amendments are given below.

***Specification***

7. The abstract of the disclosure is objected to because the phrase "the images is divided into area" is incorrect grammar and also conflicts with the rest of the sentence since there are multiple areas. Correction is required. See MPEP § 608.01(b).

***Claim Objections***

8. Claims 2-5, 9-10, 12-13, 16 and 18-24 objected to because of the following informalities:

Claims 2-5, 9-10, 12-13, 16 and 18-24 all contain the phrase "recited in claim X wherein", where X is an associated claims number. The phrases should be written "recited in claim X, wherein", where X is said associated claim number, in order to put the claim language into the proper form.

Appropriate correction is required.

9. Claims 1, 8, 15 and 17 are objected to because of the following informalities:

Claims 1, 8, 15 and 17 are not formatted properly. There should be the word "and" after the last semi-colon and before the last element of the method or system. For example, lines 7 and 8 of claim 1 should read:

"detecting the digital watermark from areas of said second image; and

determining an extent to which the digital watermark is detected in the areas as a measure of quality of the printing."

A portion of claim 1, line 1 should be modified from "correctly comprising" to "correctly, comprising".

A portion of claim 8, line 1 should be modified from "image comprising" to "image, comprising".

A portion of claim 15, line 3 should be modified from "system comprising," to "system comprising:".

The current wording of claim 17 is confusing, but it is assumed by Examiner that the intended phrasing of claim 17, line 3 is "embedded in areas of said image, said system comprising:" since after "embedded in areas of said image," a plurality of different means are listed.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-2, 4, 8, 10, 12, 15-16, 19-20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox (US Patent 5,915,027) in view of Bhaskaran (US Patent 6,064,764) and Moed (US Patent 6,363,162 B1).

**Regarding claim 1:** Cox discloses digitally watermarking an image (column 5, lines 10-12 of Cox), said watermark being redundantly applied in areas of said image (figure 2 and column 5, lines 19-24 of Cox). A portion of a watermark is itself a watermark and is applied redundantly in areas of the image (column 5, lines 19-24 of Cox).

Cox further discloses outputting said image (figure 2 ("watermarked data") and column 5, lines 32-34 of Cox); acquiring a second image of the watermarked image data (figure 4 ("watermarked data") and column 5, line 65 to column 6, line 4 of Cox); and detecting the digital watermark from areas of said second image (column 6, lines 3-10 of Cox).

Cox does not disclose expressly printing said image on a carrier; that said second image is acquired from the image printed on said carrier; and determining an extent to which the digital watermark is detected in the areas as a measure of the quality of the printing.

Bhaskaran discloses printing an image on a carrier (column 9, lines 5-8 of Bhaskaran); acquiring an image from a carrier (column 8, line 66 to column 9, line 8 of Bhaskaran); and determining an extent to which the digital watermark is detected in the areas as a measure of the level of tampering of the images (figure 5(310-312) and column 6, lines 17-19 and lines 50-58 of Bhaskaran).

Cox and Bhaskaran are combinable because they are from the same field of endeavor, namely embedding and extracting watermarks in digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer to print the watermarked image and then acquire the image from the printed paper copy of the image, as taught by Bhaskaran. The suggestion for doing so would have been that paper printing is simply one of many types of possible image outputs (column 9, lines 5-6 of Bhaskaran). Further, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to determine the extent to which the digital watermark is detected in the areas of the image upon reading the image as a measure of how much the image has been tampered with, as taught by Bhaskaran. The motivation for doing so would have been to protect a digital image from tampering (column 2, lines 18-23 of Bhaskaran) and thus be able to trace unauthorized distribution of the digital image (column 1, lines 28-33 of Bhaskaran). Therefore, it would have been obvious to combine Bhaskaran with Cox.

While a determination of the level of tampering would also demonstrate the quality of the printing of the image, Cox in view of Bhaskaran does not disclose *expressly* that said measure is a measure of the quality of the printing.

Moed discloses determining the extent image data is detected, such as with the level and continuity of image data, as a measure of the quality of the printing of an image (column 6, lines 14-28 of Moed).

Cox in view of Bhaskaran is combinable with Moed because they are from the same field of endeavor, namely digital image region analysis. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to determine the extent the watermark data taught by Cox in view of Bhaskaran is detected as a measure of the quality of the printing of the image, as taught by Moed. The motivation for doing so would have been to be able to determine if a scanned image is useable (column 1, lines 60-64 of Moed). Therefore, it would have been obvious to combine Moed with Cox in view of Bhaskaran to obtain the invention as specified in claim 1.

**Regarding claim 8:** Cox discloses digitally watermarking an image (column 5, lines 10-12 of Cox), said watermark being redundantly applied in areas of said image (figure 2 and column 5, lines 19-24 of Cox). A portion of a watermark is itself a watermark and is applied redundantly in areas of the image (column 5, lines 19-24 of Cox).

Cox further discloses outputting a watermarked image (figure 2 ("watermarked data") and column 5, lines 32-34 of Cox); acquiring a second image of the watermarked image data (figure 4("watermarked data") and column 5, line 65 to column 6, line 4 of Cox); and reading said watermark signal from said second image (column 6, lines 3-10 of Cox).

Cox does not disclose expressly that said second image is acquired from a printed image; that said second image is read to compute a measure of the digital watermark strength embedded in

the second image; and determining the quality of said printing from the measure of the digital watermark signal strength.

Bhaskaran discloses acquiring an image from a printed image (column 8, line 66 to column 9, line 8 of Bhaskaran); computing a measure of the digital watermark strength embedded in the second image (column 6, lines 42-45 and lines 59-61 of Bhaskaran); and determining an extent to which the digital watermark is detected in the areas as a measure of the level of tampering of the images (figure 5(310-312) and column 6, lines 17-19 and lines 50-58 of Bhaskaran).

Cox and Bhaskaran are combinable because they are from the same field of endeavor, namely embedding and extracting watermarks in digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to acquire the second image from the printed paper copy of the image, as taught by Bhaskaran. The suggestion for doing so would have been that paper printing is simply one of many types of possible image outputs (column 9, lines 5-6 of Bhaskaran). Further, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to compute the strength of the digital watermark signal and thus determine the extent to which the digital watermark is detected in the areas of the image upon reading the image as a measure of how much the image has been tampered with, as taught by Bhaskaran. The motivation for doing so would have been to protect a digital image from tampering (column 2, lines 18-23 of Bhaskaran) and thus be able to trace unauthorized distribution of the digital image (column 1, lines 28-33 of Bhaskaran). Therefore, it would have been obvious to combine Bhaskaran with Cox.

While a determination of the level of tampering would also demonstrate the quality of the printing of the image, Cox in view of Bhaskaran does not disclose *expressly* that the quality of said printing is determined from the measure of the digital watermark signal strength.

Moed discloses determining the extent image data is detected, such as with the level and continuity of image data, as a measure of the quality of the printing of an image (column 6, lines 14-28 of Moed).

Cox in view of Bhaskaran is combinable with Moed because they are from the same field of endeavor, namely digital image region analysis. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to determine the extent the watermark data taught by Cox in view of Bhaskaran is detected as a measure of the quality of the printing of the image, as taught by Moed. The motivation for doing so would have been to be able to determine if a scanned image is useable (column 1, lines 60-64 of Moed). Therefore, it would have been obvious to combine Moed with Cox in view of Bhaskaran to obtain the invention as specified in claim 8.

**Regarding claim 15:** Cox discloses a system (figure 4 of Cox) comprising an image capture device (figure 4("watermarked data") of Cox) for acquiring an image (column 5, line 65 to column 6, line 4 of Cox). Since the data is read into said system, some form of image capture device is inherent.

Cox further discloses a computer that executes a watermark reading program (figure 4 of Cox) for detecting a digital watermark signal from each of a plurality of areas of said image (column 6, lines 3-10 of Cox); and a code for examining the magnitude of the digital watermark signal in said areas (column

6, lines 15-20 of Cox). Performing correlation and decision operations on the watermark data in order to identify the watermarked character (column 6, lines 15-10 of Cox) requires in part an examination of the magnitude. Without sufficient magnitude of the watermark data, it is not possible to determine the symbol that has been watermarked.

Cox does not disclose expressly that said image is acquired from a printed image; and that said digital watermark signal is examined to determine the quality of said printing.

Bhaskaran discloses acquiring an image from a printed image (column 8, line 66 to column 9, line 8 of Bhaskaran); computing a measure of the digital watermark strength embedded in the second image (column 6, lines 42-45 and lines 59-61 of Bhaskaran); and determining an extent to which the digital watermark is detected in the areas as a measure of the level of tampering of the images (figure 5(310-312) and column 6, lines 17-19 and lines 50-58 of Bhaskaran).

Cox and Bhaskaran are combinable because they are from the same field of endeavor, namely embedding and extracting watermarks in digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to acquire the second image from the printed paper copy of the image, as taught by Bhaskaran. The suggestion for doing so would have been that paper printing is simply one of many types of possible image outputs (column 9, lines 5-6 of Bhaskaran). Further, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to compute the strength of the digital watermark signal and thus determine the extent to which the digital watermark is detected in the areas of the image upon reading the image as a measure of how much the

image has been tampered with, as taught by Bhaskaran. The motivation for doing so would have been to protect a digital image from tampering (column 2, lines 18-23 of Bhaskaran) and thus be able to trace unauthorized distribution of the digital image (column 1, lines 28-33 of Bhaskaran). Therefore, it would have been obvious to combine Bhaskaran with Cox.

While a determination of the level of tampering would also demonstrate the quality of the printing of the image, Cox in view of Bhaskaran does not disclose *expressly* that the quality of said printing is determined from the measure of the digital watermark signal strength.

Moed discloses determining the extent image data is detected, such as with the level and continuity of image data, as a measure of the quality of the printing of an image (column 6, lines 14-28 of Moed).

Cox in view of Bhaskaran is combinable with Moed because they are from the same field of endeavor, namely digital image region analysis. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to determine the extent the watermark data taught by Cox in view of Bhaskaran is detected as a measure of the quality of the printing of the image, as taught by Moed. The motivation for doing so would have been to be able to determine if a scanned image is useable (column 1, lines 60-64 of Moed). Therefore, it would have been obvious to combine Moed with Cox in view of Bhaskaran to obtain the invention as specified in claim 15.

**Regarding claims 2, 10 and 16:** Cox discloses that said digital watermark includes a signal embedded into the image at selected spatial frequencies (column 4, lines 55-60 and column 8, lines 36-40 of Cox). The watermarks are embedded in the

image using the computed two-dimensional DCT coefficients (column 8, lines 36-40 of Cox). As is well-known in the art, DCT coefficients are based on spectral characteristics of the input signal, in this case a watermark signal.

**Further regarding claim 4:** Bhaskaran discloses that said second image is acquired using a digital camera (column 8, line 66 to column 9, line 1 of Bhaskaran).

**Regarding claim 12:** Cox discloses that said watermark is redundantly embedded in multiple areas of said image (figure 2 and column 5, lines 19-24 of Cox). A portion of a watermark is itself a watermark and is applied redundantly in multiple areas of the image (column 5, lines 19-24 of Cox).

**Regarding claims 19 and 22:** Cox does not disclose expressly that the strength of the digital watermark signal in the areas is used as a measure of print quality.

Bhaskaran discloses that the extent to which the digital watermark is detected in the areas is the measure of the level of tampering of the images (figure 5(310-312) and column 6, lines 17-19 and lines 50-58 of Bhaskaran).

Cox and Bhaskaran are combinable because they are from the same field of endeavor, namely embedding and extracting watermarks in digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use strength of the digital watermark signal, and thus the extent to which the digital watermark is detected in the areas of the image upon reading the image, as the measure of how much the image has been tampered with, as taught by Bhaskaran. The motivation for doing so would have been to protect a digital image from tampering (column 2, lines 18-23 of Bhaskaran) and thus be able to trace unauthorized distribution of the digital

image (column 1, lines 28-33 of Bhaskaran). Therefore, it would have been obvious to combine Bhaskaran with Cox.

While a determination of the level of tampering would also demonstrate the quality of the printing of the image, Cox in view of Bhaskaran does not disclose *expressly* that the quality of said printing is determined from the measure of the digital watermark signal strength.

Moed discloses determining the extent image data is detected, such as with the level and continuity of image data, as a measure of the quality of the printing of an image (column 6, lines 14-28 of Moed).

Cox in view of Bhaskaran is combinable with Moed because they are from the same field of endeavor, namely digital image region analysis. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to determine the extent the watermark data taught by Cox in view of Bhaskaran is detected as a measure of the quality of the printing of the image, as taught by Moed. The motivation for doing so would have been to be able to determine if a scanned image is useable (column 1, lines 60-64 of Moed). Therefore, it would have been obvious to combine Moed with Cox in view of Bhaskaran to obtain the invention as specified in claims 19 and 22.

**Regarding claims 20 and 23:** Cox discloses that the watermarks are embedded in the image using the computed two-dimensional DCT coefficients (column 8, lines 36-40 of Cox). As is well-known in the art, DCT coefficients for a digital image are coefficients related to the spatial frequency components of said image. Since the watermark is embedded based on DCT coefficients, the method according to Cox in view of Bhaskaran

and Moed would therefore measure the strength of the digital watermark as a function of spatial frequencies that have been modified to embed the digital watermark in the areas.

12. Claims 3, 5, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox (US Patent 5,915,027) in view of Bhaskaran (US Patent 6,064,764), Moed (US Patent 6,363,162 B1), and Austin (US Patent 5,488,223).

**Regarding claims 3, 9 and 13:** Cox in view of Bhaskaran and Moed does not disclose expressly that said carrier is a label.

Austin discloses printing on a carrier, wherein said carrier is a label (figure 3b and column 7, lines 56-59 of Austin).

Cox in view of Bhaskaran and Moed is combinable with Austin because they are from the same field of endeavor, namely printing, reading, and processing digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to print said watermarked image on a label. The motivation for doing so would have been labels can be used as another form of data storage and entry (column 4, lines 3-5 of Austin). Therefore, it would have been obvious to combine Austin with Cox in view of Bhaskaran and Moed to obtain the invention as specified in claims 3, 9 and 13.

**Further regarding claim 5:** Austin discloses rejecting said labels if the image data read from said labels does not meet certain criteria (column 8, lines 1-3 and lines 6-7 of Austin).

13. Claims 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox (US Patent 5,915,027) in view of Bhaskaran (US Patent 6,064,764), Moed (US Patent 6,363,162 B1), and Zhao (US Patent 6,243,480 B1).

**Regarding claims 21 and 24:** Cox in view of Bhaskaran and Moed does not disclose expressly that the digital watermark is embedded in a background image.

Zhao discloses embedding a digital watermark in a background image (column 11, lines 16-19 of Zhao).

Cox in view of Bhaskaran and Moed is combinable with Zhao because they are from the same field of endeavor, namely the embedding and manipulating watermark image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to embed the digital watermark specifically in a background image. The motivation for doing so would have been to be able to include data such as computer programs in the background of the image (column 11, lines 40-46 of Zhao). Therefore, it would have been obvious to combine Zhao with Cox in view of Bhaskaran and Moed to obtain the invention as specified in claims 21 and 24.

14. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox (US Patent 5,915,027) in view of Austin (US Patent 5,488,223), Bhaskaran (US Patent 6,064,764), and Moed (US Patent 6,363,162 B1).

**Regarding claim 17:** Cox discloses a system (figure 4 of Cox) comprising means (figure 4("watermarked data") of Cox) for acquiring an image (column 5, line 65 to column 6, line 4 of Cox). Since the data is read into said system, some form of image capture device is inherent.

Cox further discloses means (figure 4(42) of Cox) for detecting a watermark signal from the areas of said image (column 6, lines 3-10 of Cox); and means (figure 4(44(a,b,…)) of Cox) for examining said watermark data in each area of said image (column 6, lines 15-20 of Cox).

Cox does not disclose expressly that said acquired image is an image of printed labels after said labels have been printed; and means for determining an extent to which the watermark signal is detected in the areas as a measure of print quality of said labels.

Austin discloses acquiring an image of printed labels (figure 3b and column 7, lines 56-59 of Austin) after said labels have been printed (column 7, line 66 to column 8, line 1 of Austin).

Cox and Austin are combinable because they are from the same field of endeavor, namely printing, reading, and processing digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art print watermarked data onto labels, as taught by Cox. The suggestion for doing so would have been that labels are simply another one of many possible output media that can be printed upon. Therefore, it would have been obvious to combine Austin with Cox.

Cox in view of Austin does not disclose expressly means for determining an extent to which the watermark signal is detected in the areas as a measure of print quality of said labels.

Bhaskaran discloses means (figure 5(310-312) of Bhaskaran) for determining an extent to which the watermark signal is detected in the areas as a measure of the level of tampering of the images (column 6, lines 17-19 and lines 50-58 of Bhaskaran).

Cox in view of Austin is combinable with Bhaskaran because they are from the same field of endeavor, namely embedding and extracting watermarks in digital image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to compute the strength of the digital watermark signal and thus determine the extent to which the digital watermark is detected in the areas of the image upon reading the image as a measure of how much the image has been tampered with, as taught by Bhaskaran. The motivation for doing so would have been to protect a digital image from tampering (column 2, lines 18-23 of Bhaskaran) and thus be able to trace unauthorized distribution of the digital image (column 1, lines 28-33 of Bhaskaran). Therefore, it would have been obvious to combine Bhaskaran with Cox in view of Austin.

While a determination of the level of tampering would also demonstrate the quality of the printing of the image, Cox in view of Austin and Bhaskaran does not disclose *expressly* that the quality of said printing is determined from the extent by which the digital watermark signal is detected.

Moed discloses determining the extent image data is detected, such as with the level and continuity of image data, as a measure of the quality of the printing of an image (column 6, lines 14-28 of Moed).

Cox in view of Austin and Bhaskaran is combinable with Moed because they are from the same field of endeavor, namely digital image region analysis. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to determine the extent the watermark data taught by Cox in view of Austin and Bhaskaran is detected as a measure of the quality of the printing of the image, as taught by Moed. The motivation

for doing so would have been to be able to determine if a scanned image is useable (column 1, lines 60-64 of Moed). Therefore, it would have been obvious to combine Moed with Cox in view of Austin and Bhaskaran to obtain the invention as specified in claim 17.

**Regarding claim 18:** Cox discloses that said digital watermark includes a signal embedded into the image at selected spatial frequencies (column 4, lines 55-60 and column 8, lines 36-40 of Cox). The watermarks are embedded in the image using their computed two-dimensional DCT coefficients (column 8, lines 36-40 of Cox). As is well-known in the art, DCT coefficients are based on spectral characteristics of the input signal, in this case a watermark signal.

***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
15 June 2005

THOMAS D. LEE
PRIMARY EXAMINER